UGANDA INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
WEEKDAY PROGRAMME END OF SEMESTER TWO EXAMINATIONS

ACADEMIC YEAR 2018/2019

DEPARTMENT: ICT

SEMESTER: ONE

PROGRAMME(S): DIPLOMA IN INFORMATION TECHNOLOGY IN SCIENCE (ITS)
DIPLOMA IN ELECTRONIC ENGINEERING (DEEE)

YEAR OF STUDY: ONE

COURSE: SOFTWARE ENGINEERING

COURSE CODE : IT224

DATE: WEDNESDAY 6TH, DECEMBER 2018

TIME: 9:00 AM – 12:00 NOON

DURATION: 3 HOURS

INSTRUCTIONS:

(i) This paper contains two Sections: A (40 marks) & B (60 marks).
(ii) Attempt ALL questions in Section A, and ONLY THREE questions in Section B.
(iii) All questions in Section B carry equal marks.
(iv) Credit will be given for use of relevant examples and illustrations.
(v) Begin each number in Section B on a new page of the answer sheet.

(vi) DO NOT write on this question paper.

SECTION A [40 MARKS]

Attempt **ALL** the Questions in this Section.

Question 1

(a) (i) Define Software Engineering. **(2 marks)**

(ii) Give any **three** attributes of good software. **(3 marks)**

(Iii) Give any **two** characteristics of early computer programming. **(2 marks)**

(b) (i) State any **four** professional and ethical responsibilities that software engineers should have if they are to be respected as professionals. **(4 marks)**

(ii) Briefly explain any **three** challenges a software engineer may encounter during Software Development process. **(3 marks)**

(iii) Write any **three** differences between programs and Software products **(3 marks)**

(c) (i) What is the difference between coupling and cohesion? **(4 marks)**

(ii) What is a Software Requirements Specification (SRS) document? **(4 marks)**

(d) (i) What is the importance of software requirements specification (SRS) document in the Software engineering process? **(4 marks)**

(ii) Give any **five** characteristics of a good quality SRS document. **(5 marks)**

(e) Give any **three** advantages of using incremental development in process iteration. **(3 marks)**

(f) Identify any **three** advantages of using questionnaires as a fact finding technique in software projects. **(3 marks)**

[40 marks]

SECTION B [60 MARKS]

Attempt **ONLY THREE** Questions in this Section.

Question 2

(a) (i) With the help of a diagram, explain the reuse maintenance model.

(ii) Describe the various steps of the reuse-oriented model. **[3 marks @]** **(6 marks)**

(b) Distinguish between black-box and white-box testing. **(4 marks)**

(c) Explain any two activities performed during software risk management. **(4 marks)**

(d) Explain the following levels of software testing:

(i) Unit testing

(ii) Integration testing

(iii) System testing **[2 marks @]** **(6marks)**

Question 3

(a) Differentiate between cohesion and coupling as used in Software Engineering. **(4 marks)**

(b) Write any **four** characteristics of a good software design. **(4 marks)**

(c) Examine any **three** benefits of an SRS in Software Engineering. **(3 marks)**

(d) Write any **three** types of coupling as applied in software Engineering. **(6 marks)**

(e) Outline any **three** software quality management activities known in software Engineering . **(3 marks)**

Question 4

(a) What do you understand by the following terms?
   (i) Software life cycle model
   (ii) Software process **[2 marks @]** **(4 marks)**

(b) With the help of an illustration, briefly describe the Waterfall model. **(6 marks)**

(c) What is the major drawback of the waterfall model. **(2 marks)**

(d) Give **two** reasons and explain why some developers use the waterfall process model. **(4 marks)**

(e) Distinguish between software reliability and software availability. **(4 marks)**

Question 5

(a) Briefly explain any **three** advantages of using Interviews in requirements determination. **(6 marks)**

(b) Outline the major **three** responsibilities of Software Project Manager. **(6 marks)**

(c) Write the **four** important items that a software Project Management Plan (SPMP) document should have. **(4 marks)**

(d) Explain any **four** attributes of a good software engineer. **(4 marks)**

Question 6

(a) (i) Define requirements engineering? **(2 marks)**
(ii) Describe the **four** main phases in the Requirements Engineering process. **(8 marks)**

(b) It is always necessary to have successive meetings between the client team and the developer team. What is the intension of these meetings? **(2 marks)**

(c) With examples, differentiate between functional and non-functional Requirements, as used in software engineering. **(4 marks)**

(d) Explain the concept of bottom-up and top-down design techniques, as used in software development. **(4 marks)**

END